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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,056	12/01/2003	Tetsuo Kunii	402887	1470

23548 7590 07/14/2005
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EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/724,056	KUNII ET AL.	
	Examiner	Art Unit	
	Hung Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al. (PN 6,483,176, of record).

Noguchi et al. discloses, as shown in Figures 1-4, a semiconductor device comprising:

a plurality of semiconductor elements (100), each semiconductor elements having first and second main electrodes (7,7) and control electrode (8);

a semiconductor substrate (10) having a first principal surface on which the first and second main electrodes and the control electrode are located;

a film (13) at least partially covering the first main electrodes and the control electrodes, insulating the first main electrodes and the control electrodes from the second main electrodes, and is made of a polymer with a low dielectric constant (Col. 19, lines 24-32);

a chip surface electrode (3) at least covering the film, contacting the second main electrodes, and connected to a ground potential, wherein the second main electrodes are provide with the ground potential through the chip surface electrode (see Figures 1-4, Col. 5, line 52-Col.6, line 17, and Col. 8, lines 1-6).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. (PN 6,483,176, of record) in view of Haematsu (PN 6,664,624).

Noguchi et al. discloses the claimed invention including the semiconductor device as explained in the rejection above. Noguchi et al. does not disclose a first pad connected to the first main electrodes and a second pad connected to the control electrodes, the first and second pads being located on the first principal surface. However, Haematsu discloses a semiconductor device having a first pad (11A,13A) connected to the first main electrodes (11,13) and a second pad (12A) connected to the control electrodes (12), the first and second pads being located on the first principal surface. Note Figures 1A, 2A and 3 of Haematsu. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the semiconductor substrate of Noguchi et al. having a first pad connected to the first main electrodes and a second pad connected to the control electrodes, the first and second pads being located on the first principal surface, such as taught by Haematsu in order to provide the connections between the input/output terminals and the first and the control electrodes.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. (PN 6,483,176, of record) in view of Zhao (PN 6,071,809, of record).

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Noguchi et al. discloses the claimed invention including the semiconductor device as recited in the rejection above. Noguchi et al. further discloses the semiconductor substrate is made of silicon. Noguchi et al. does not disclose the semiconductor substrate is one of SiC and sapphire. However, Zhao discloses a semiconductor substrate (302) is one of silicon, SiC and sapphire, etc. Note Figures 3L and 5-6 and Col. 5, lines 11-24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the semiconductor substrate of Noguchi et al. being one of SiC and sapphire, such as taught by Zhao because silicon, SiC and sapphire are commonly used as the semiconductor substrate and they are interchangeable.

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. (PN 6,483,176, of record) in view of Applicants' Admitted Prior Art of Figures 14-15. Noguchi et al. discloses the claimed invention including the semiconductor device as recited in the rejection above. Noguchi et al. does not disclose the device including a heat sink on a second principal surface of the semiconductor substrate, opposite the first principal surface of the semiconductor substrate. However, Applicants' Admitted Prior Art of Figures 14-15 disclose a the device including a heat sink (10) on a second principal surface of the semiconductor substrate (1), opposite the first principal surface of the semiconductor substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the semiconductor substrate of Noguchi et al. including a heat sink on a second principal surface of the semiconductor substrate, opposite the first principal surface of the semiconductor substrate,

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such as taught by Applicants' Admitted Prior Art of Figures 14-15 in order to further reduce the thermal heat from the device.

Regarding claim 8, Noguchi et al. and Applicants' Admitted Prior Art of Figures 14-15 disclose the heat sink is electrically conductive and is in electrical contact with the chip surface electrode through the first main electrode.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., none of three kinds of electrodes is left exposed) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Response to Arguments

5. Applicant's arguments filed 05/04/05 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., none of three kinds of electrodes is left exposed nor contacted by a common chip electrode) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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It is argued, at pages 5-6 of the Remarks, that Noguchi et al. does not disclose any of the electrodes contacted by a common chip electrode. This argument is not convincing because Noguchi et al. discloses, as shown in Figures 1-4 and Col. 8, lines 1-6, the electrodes (7,7) contacted by a common chip electrode (3) through layers 4,5,1,2 and 6.

It is argued, at page 6 of the Remarks, that Zhao does not supply the part of claim 1 that is clearly missing from Noguchi et al., therefore, no combination of Noguchi et al. and Zhao can establish prima facie obviousness. This argument is not convincing because Applicants' claim 1 still does not overcome the rejection over Noguchi et al., therefore, claim 3 still does not distinguish over the combination of Noguchi et al. and Zhao references.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

July 5, 2005

A handwritten signature in black ink, appearing to read "Hung Vu", is written over a horizontal line.

Hung Vu

Primary Examiner